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09/808,503	03/14/2001	James Gordon McLean	1950P/RPS920000112	3604
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			BRANT, DMITRY	
			ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/808,503	MCLEAN, JAMES GORDON
	Examiner Dmitry Brant	Art Unit 2655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03/14/01.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-31 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-31 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4. | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. The U.S. patents of Sone, Lee, and Zampini et al., teach computer-based systems and hence the methods, computer-readable medium and computer code necessary to implement these systems are inevitably part of their teachings.

3. Claim 1,2,7-9,10, 13-15, 28, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Sone (5,919,047).

The table below summarizes the limitations of this applicant's claims and the parts of Sone that match these limitations.

Claim#	Limitations	Sone
1, 28	A method for cross-fading digital audio, comprising the steps of: (a) determining a plurality of characteristics for a first and a second digital audio files and (b) associating the plurality of characteristics with the first and the second digital audio files	Differences in musical properties, such as volume and rhythm between the preceding and the succeeding files are extracted (Col. 8, lines 50-55)

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	<p>(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded</p> <p>(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.</p>	<p>Based on the difference extraction, optimal linking mode is selected (Col. 8, lines 55-57)</p> <p>(elem. S25, Fig. 6) and (Col. 8, lines 57-60)</p>
2	The method of claim 1, wherein the determining step (a) comprises: (a1) determining the plurality of characteristics by a user for the first and the second digital audio files.	The mode selection may be performed by the user (Col. 9, lines 2-3)
7	The method of claim 1, wherein the associating step (b) comprises: (b1) storing the plurality of characteristics in a temporary memory.	preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28) and storing these characteristics in buffer memory (Col. 8, lines 33-35)
8	<p>The method of claim 1, wherein the automatically determining step (c) comprises:</p> <p>(c1) comparing an ending characteristic for the first digital audio file with a beginning characteristic for the second digital audio file;</p> <p>(c2) determining the appropriate cross-fading method based upon the comparing step (c1);</p>	<p>The trailing end of “sabi” section is compared with the leading piece of the next sabi section (Col. 8, lines 48-55)</p> <p>Based on the difference extraction, optimal linking mode is selected (Col. 8, lines 55-57)</p>

	<p>(c3) calculating a fade-out start time or an ending time for the first digital audio file;</p> <p>(c5) defining a start time for the second digital audio file; and</p> <p>(c4) defining an envelope for the first digital audio file;</p> <p>(c6) defining an envelope for the second digital audio file.</p>	<p>The end time for first song and start time for the second songs are determined (FIG. 2) by “sabi” markers that signify the beginning and ends of the cross-fading sections, because sabi pieces do not get altered in cross-fading and thus specify ultimate bounds for the cross-fading section.</p> <p>FIG. 7(B) shows the first and second songs’ envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly increasing the volume of the second song.</p>
9	<p>The method of claim 1, wherein the automatically cross-fading step (d) comprises:</p> <p>(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and</p> <p>(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time</p>	<p>FIG. 7(B) shows the first and second songs’ envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song until it ends and slowly increasing the volume of</p>

	is reached.	the second song until the "sabi" section of the second song is reached.
10	<p>A method for cross-fading digital audio, comprising the steps of:</p> <p>(a) determining a plurality of characteristics by a user for a first and a second digital audio files and (b) associating the plurality of characteristics with the first and the second digital audio files</p> <p>(c) automatically determining an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio files are to be cross-faded</p> <p>(d) automatically cross-fading the first and the second digital audio files in accordance with the cross-fading method.</p>	<p>Differences in musical properties, such as volume and rhythm between the preceding and the succeeding files are extracted (Col. 8, lines 50-55). In addition, the mode selection may be performed by the user (Col. 9, lines 2-3)</p> <p>Based on the difference extraction, optimal linking mode is selected (Col. 8, lines 55-57)</p> <p>(elem. S25, Fig. 6) and (Col. 8, lines 57-60)</p>
13	The method of claim 10, wherein the associating step (b) comprises: (b1) storing the plurality of characteristics in a temporary memory.	preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28) and storing these characteristics in buffer memory (Col. 8, lines 33-35)

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14	<p>The method of claim 10, wherein the automatically determining step (c) comprises:</p> <ul style="list-style-type: none"> (c1) comparing an ending characteristic for the first digital audio file with a beginning characteristic for the second digital audio file; (c2) determining the appropriate cross-fading method based upon the comparing step (c1); (c3) calculating a fade-out start time or an ending time for the first digital audio file; (c5) defining a start time for the second digital audio file; and (c4) defining an envelope for the first digital audio file; (c6) defining an envelope for the second digital audio file. 	<p>The trailing end of “sabi” section is compared with the leading piece of the next sabi section (Col. 8, lines 48-55)</p> <p>Based on the difference extraction, optimal linking mode is selected (Col. 8, lines 55-57)</p> <p>The end time for first song and start time for the second songs are determined (FIG. 2) by “sabi” markers that signify the beginning and ends of the cross-fading sections, because sabi pieces do not get altered in cross-fading and thus specify ultimate bounds for the cross-fading section.</p> <p>FIG. 7(B) shows the first and second songs’ envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly</p>
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		increasing the volume of the second song.
15	<p>The method of claim 10, wherein the automatically cross-fading step (d) comprises:</p> <p>(d1) fading out or ending the first digital audio file according to an envelope of the first digital audio file when a fade-out time or an ending time is reached; and</p> <p>(d2) starting or fading in the second digital audio file according to an envelope of the second digital audio file when a start time is reached.</p>	<p>FIG. 7(B) shows the first and second songs' envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song until it ends and slowly increasing the volume of the second song until the “sabi” section of the second song is reached.</p>
31	<p>A system, comprising:</p> <p>a first digital audio file;</p> <p>a second digital audio file;</p> <p>and a playing device, wherein the playing device determines a plurality of characteristics for the first and a second digital audio files, associates the plurality of characteristics with the first and the second digital audio files,</p> <p>automatically determines an appropriate cross-fading method for the first and the second digital audio files based upon the plurality of characteristics when the first and the second digital audio file s are to be cross-faded, and</p>	<p>Plurality of music pieces (Col. 1, line 54-56)</p> <p>Differences in musical properties, such as volume and rhythm between the preceding and the succeeding files are extracted (Col. 8, lines 50-55)</p> <p>Based on the difference extraction, optimal linking mode is selected (Col. 8, lines 55-57)</p>

	automatically cross-fades the first and the second digital audio files in accordance with the cross-fading method.	(elem. S25, Fig. 6) and (Col. 8, lines 57-60)
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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 3,4, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone as applied to claim 1, and further in view of Lee (6,278, 048).

Sone discloses a karaoke device capable of medley playback using MIDI format (Col. 6, line 62). In addition, Sone discloses automatically analyzing the beginning of the last song with the beginning of the next song in order to determine if the characteristics (such as volume and rhythm) of the songs match (Col. 8, lines 48-55). Finally, FIG. 7(B) in Sone discloses the first and second songs' envelopes and their corresponding overlap in the cross-fade operation.

Sone does not disclose "automatically decompressing" the beginning and the end of the music files, because his invention uses MIDI format.

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience. Because MP3 files are highly compressed, the system using MP3 files would inherently have to decompress at least parts of files in order to identify their characteristics (volume, rhythm, etc), as disclosed by Sone.

As per claim 4, Sone discloses a karaoke device capable of medley playback using MIDI format (Col. 6, line 62). In addition, Sone discloses automatically analyzing the beginning of the last song with the beginning of the next song in order to determine if the characteristics (such as volume and rhythm) of the songs match (Col. 8, lines 48-55). Finally, Sone discloses preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28)

Sone does not disclose “automatically decoding” the beginning and the end of the music files.

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught by Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience. Because MP3 files are highly compressed, the system using MP3

files would inherently have to decode at least parts of the files in order to identify their characteristics (volume, rhythm, etc), as disclosed by Sone.

As per claim 6, Sone does not disclose “storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.”

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46). MP3 files contain various information in the tags, such as music genre, which could be used to identify certain file characteristics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience. Additionally, file characteristics stored in MP3 tags would simplify system’s task in choosing appropriate cross-fading mode.

6. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Zampini et al. (5,488,669), as applied to claim 1.

Sone does not disclose “storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.”

Zampini teaches “storing” user-defined cross-fading settings (Col. 4, lines 53-56). This configuration is stored in non-volatile memory of the computer (Col. 5, line 1) and hence, inherently, can be in the form of computer files.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught by Zampini, in order to maintain a permanent record of user settings associated with audio file cross-fading. This would allow the user to import, export and re-use the same settings for multiple audio files, thus greatly enhancing the usability of the system. Additionally, file characteristics stored in MP3 tags would simplify system's task in choosing appropriate cross-fading mode.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone as applied to claim 10, and further in view of Zampini et al.

Sone does not disclose "storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file."

Zampini teaches "storing" user-defined settings that specify preferred characteristics for cross-fading (Col. 4, lines 53-56). This configuration is stored in non-volatile memory of the computer (Col. 5, line 1) and hence, is necessarily saved as a computer file.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught by Zampini, in order to maintain a permanent record of stored, user-defined characteristics associated with cross-fading of audio files. This would allow the user to import, export and re-use the same settings for multiple audio files, thus greatly enhancing the usability of the system.

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone as applied to claim 10, and further in view of Lee.

Sone does not disclose “storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.”

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46). MP3 files contain various information in the tags, such as music genre, which could be used to identify certain file characteristics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience.

9. Claims 16, 18-21, 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Lee.

As per claims 16 and 29, Sone discloses:

- a karaoke device capable of medley playback using MIDI format (Col. 6, line 62).
- automatically analyzing the beginning of the last song with the beginning of the next song in order to determine if the characteristics (such as volume and rhythm) of the songs match (Col. 8, lines 48-55)
- Performing cross-fading, as shown in FIG. 7(B), where it is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly increasing the volume of the second song.

Sone does not disclose “decompressing” the beginning of the second musical file.

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46)

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience. Because MP3 files are highly compressed, the system using MP3 files would inherently have to decode at least parts of the files in order to identify their characteristics (volume, rhythm, etc), as disclosed by Sone.

As per claim 18, Sone does not disclose “storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.”

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46). MP3 files can inherently contain various information in the tags, such as music genre, which could be used to identify certain file characteristics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience.

As per claim 19, Sone discloses preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28) and storing these characteristics in buffer memory (Col. 8, lines 33-35)

As per claims 20-21, Sone discloses that the end time for first song and start time for the second songs are determined (FIG. 2) by “sabi” markers that signify the beginning and ends of the cross-fading sections, because sabi pieces do not get altered in cross-fading and thus specify ultimate bounds for the cross-fading section. In addition, FIG. 7(B) shows the interaction between the first and second songs’ envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly increasing the volume of the second song.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone and Lee, as applied to claim 16, and further in view of Zampini et al.

Sone and Lee do not disclose “storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.”

Zampini teaches “storing” user-defined cross-fading settings (Col. 4, lines 53-56). This configuration is stored in non-volatile memory of the computer (Col. 5, line 1) and hence, is necessarily saved in the form of a computer file.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone and Lee, as taught by Zampini, in order to maintain a permanent record of user settings associated with audio file cross-fading. This would allow the user to

import, export and re-use the same settings for multiple audio files, thus greatly enhancing the usability of the system.

11. Claims 22, 24-27, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sone in view of Lee.

As per claim 22 and 30, Sone discloses:

- a karaoke device capable of medley playback using MIDI format (Col. 6, line 62).
- automatically analyzing the beginning of the last song with the beginning of the next song in order to determine if the characteristics (such as volume and rhythm) of the songs match (Col. 8, lines 48-55)
- preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28)
- Performing cross-fading, as shown in FIG. 7(B), where it is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly increasing the volume of the second song.

Sone does not disclose “decompressing” the beginning of the second musical file.

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience. Because MP3 files are highly compressed, the system using MP3 files would inherently have to decode at least parts of the files in order to identify their characteristics (volume, rhythm, etc), as disclosed by Sone.

As per claim 24, Sone does not disclose “storing the plurality of characteristics in a header or a tag in the first or the second digital audio file.”

Lee teaches the decoding of MP3 files for a playback on a karaoke device (Col. 2, lines 42-46). MP3 files can inherently contain various information in the tags, such as music genre, which could be used to identify certain file characteristics.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone as taught in Lee to allow the karaoke device to use MP3 files instead of MIDI format. The use of compressed MP3 files would allow a karaoke machine to store more music files locally and, if necessary, download additional songs from the network, thus enhancing user experience.

As per claim 25, Sone discloses preloading the characteristics of music data ahead of the actual playback (Col. 8, lines 24 - 28) and storing these characteristics in buffer memory (Col. 8, lines 33-35).

As per claims 26-27, Sone discloses that the end time for first song and start time for the second songs are determined (FIG. 2) by “sabi” markers that signify the beginning and ends of the cross-fading sections, because sabi pieces do not get altered in cross-fading and thus specify ultimate bounds for the cross-fading section. In addition, FIG. 7(B) shows the interaction between the first and second songs’ envelopes, where cross-fading is performed by matching the volume envelopes (Col. 9, lines 31-36), i.e. decreasing the volume of first song and slowly increasing the volume of the second song.

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sone and Lee, as applied to claim 22, in further in view of Zampini et al.

Sone and Lee do not disclose “storing the plurality of characteristics in at least one characteristics file associated with the first or the second digital audio file.”

Zampini teaches “storing” user-defined cross-fading settings (Col. 4, lines 53-56). This configuration is stored in non-volatile memory of the computer (Col. 5, line 1) and hence, is necessarily saved as a computer file.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Sone and Lee, as taught by Zampini, in order to maintain a permanent record of user settings associated with audio file cross-fading. This would allow the user to import, export and re-use the same settings for multiple audio files, thus greatly enhancing the usability of the system.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Matsumoto (5,747,716) teaches medley playback apparatus.

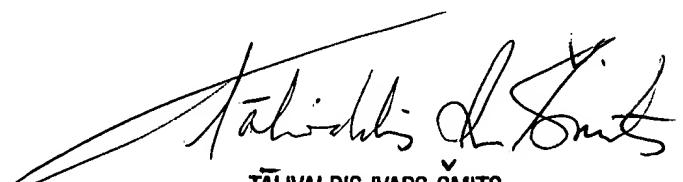
Horii (5,454,723) teaches medley playback apparatus with cross-fading.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dmitry Brant whose telephone number is (703) 305-8954. The examiner can normally be reached on Mon. - Fri. (8:30am - 5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Ivars Smits can be reached on (703) 306-3011. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to Tech Center 2600 receptionist whose telephone number is (703) 305- 4700.

DB
2/20/04



TALIVALDIS IVARS SMITS
PRIMARY EXAMINER